

1. Carbon compounds as fuels and feedstock

Hydrocarbon	A chemical made of only carbon and hydrogen
Crude oil	A mixture of hydrocarbons found in rock
Alkanes	Saturated hydrocarbons (without double bond)
Alkene	Unsaturated hydrocarbon (with double bond). They turn bromine water from brown to colourless.
Fractional distillation	A process of separating crude oil using the different boiling points of fractions
Viscosity	How thick a liquid is
Flammability	How easily a fraction catches fire
Boiling point	The temperature at which a substance turns from a liquid to a gas
Combustion	A reaction where a fuel is oxidised releasing heat energy
Cracking	Breaking less useful long-chain alkanes into useful short-chain alkanes and alkenes

4. Properties of hydrocarbons

Property	Change as carbon chain gets longer
Boiling point	Increases
Viscosity	Increases (less runny)
Flammability	Decreases

2. Alkanes

General formula	C_nH_{2n+2}	
Name	Molecular formula	Displayed formula
Methane	CH ₄	$\begin{array}{c} H \\ \\ H-C-H \\ \\ H \end{array}$
Ethane	C ₂ H ₆	$\begin{array}{c} H & H \\ & \\ H-C & -C-H \\ & \\ H & H \end{array}$
Propane	C ₃ H ₈	$\begin{array}{c} H & H & H \\ & & \\ H-C & -C & -C-H \\ & & \\ H & H & H \end{array}$
Butane	C ₄ H ₁₀	$\begin{array}{c} H & H & H & H \\ & & & \\ H-C & -C & -C & -C-H \\ & & & \\ H & H & H & H \end{array}$

5. Cracking

Type of cracking	Conditions
Catalytic	Hot (500°C) + catalyst
Steam	Very hot (850°C) + Steam
Short chain = desirable	Long chain = undesirable

3. Fractional distillation

1.	The column is cooler at the top than the bottom
2.	The crude oil is heated
3.	The fractions evaporate and rise up the column
4.	The fractions condense at different points according to their boiling point
5.	The liquid fractions run off and are collected

